



Technology Leadership
for Digital Cinema

D o r e m i F i n a l C u t P r o D C P P l u g - I n

User Manual

Version 1.6

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Software License Agreement

The software license agreement can be found at the following location:

<http://www.doremilabs.com/support/proav-support/proav-warranties/>

1 Introduction

The Doremi Final Cut Pro DCP Plug-In allows users to create Digital Cinema Packages (DCP) directly from the Final Cut Pro time line using the robust CineAsset encoding algorithms. The Plug-In can be used to create both 2D and 3D DCPs. Using the JPEG2000 codec and XYZ' (YCxCz' for 3D) color conversion, you can export directly from the Final Cut Pro time line as an unencrypted DCI-compliant DCP. Once exported, the DCP will be ready to be ingested into any standard Digital Cinema Server.

1.1 System Requirements

The Doremi Final Cut Pro DCP Plug-In is only compatible with Final Cut Pro 7.x.x. It is not compatible with Final Cut Pro Express or Final Cut Pro X.

- OS X 10.6.x
- 1GB RAM minimum, recommended 512MB/core (example Quad Core => 2 GB).
- Dual core processor, recommended Quad Core.
- Final Cut Pro must be installed before installing the Plug-In.

1.2 Software Version

The current software version that this manual pertains to is 1.0.x.

1.3 Contact

If in need of help or assistance, please contact your nearest Doremi Labs Technical Support at:

USA

- 24/7 Technical Support Line: +1-866-484-4004
- Technical Support Email: support@doremicinema.com

Europe

- 24/7 Technical Support Line: +33 (0) 492-952-847
- Technical Support Link: <http://support.doremitechno.org/ticketing>

Japan

- Technical Support Line: +044-966-4855
- Technical Support Email: support@doremilabs.co.jp

Australia ~ China ~ India ~ Indonesia ~ Korea ~ Malaysia ~ New Zealand ~ Philippines ~ Singapore ~ Taiwan ~ Thailand

- Technical Support Email: supportasia@doremilabs.com

2 Configuration

2.1 Installation

The Plug-In installer can be download from the Doremi Cinema website at <http://www.doremilabs.com/>.

Note: Before installing the Plug-In, Final Cut Pro must already be installed on your computer.

- To install the Plug-In:
 1. Unzip the DoremiPlugin_1.0.8.dmg.zip file.
 2. Double-click on the DoremiPlugin_1.0.8.dmg file to mount the disk image.
 3. Double-click on the DoremiPlugin_1.0.8.pkg file and follow the on-screen instructions to install the plug-in.

2.2 Software License

Without a valid software license, the Doremi FCP DCP Plug-In will run in "Unregistered" mode. In "Unregistered" mode, all generated packages will be limited to 15 seconds and will have a Doremi watermark embedded in the lower right-hand corner (Figure 3).

To obtain a software license contact sales@doremicinema.com with the following information:

- Location (e.g. US, Japan, Europe...)
- Company Name
- User Name
- Email Address
- Registration Key

To locate the registration key:

1. Open Final Cut Pro.
2. Select a sequence to export.
3. Select File->Export->Export to DCP.
4. Once the Plug-In window appears click on the blue circle in the upper left hand corner (Figure 1).



Figure 1: Blue Circle

5. The about window will open allowing you to view and copy your registration key (Figure 2).

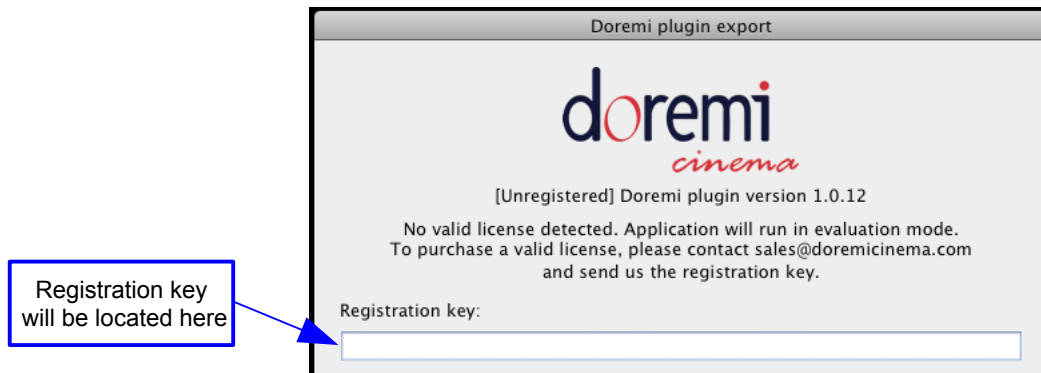


Figure 2: Registration Key Location



Figure 3: Embedded Doremi Logo

3 Creating Digital Cinema Packages

The following sections describe the procedure for creating both 2D and 3D DCPs.

3.1 Creating 2D Digital Cinema Packages

1. In the Browser window, select the FCP Sequence you want to export.

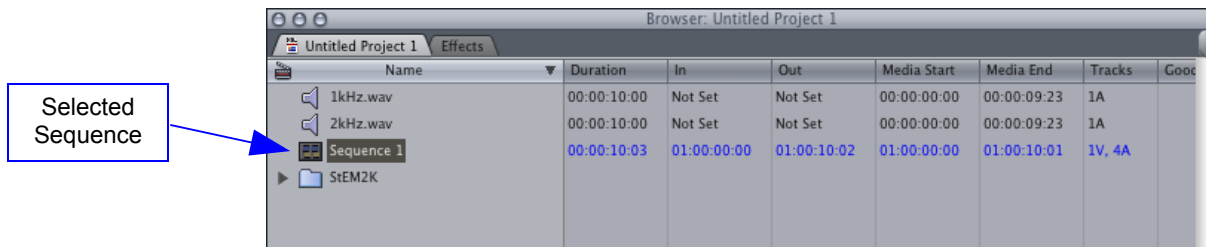


Figure 4: Select the 2D Sequence

2. Once you have selected the appropriate sequence, go to the "File" menu and select "Export," then scroll down and select "Export to DCP."

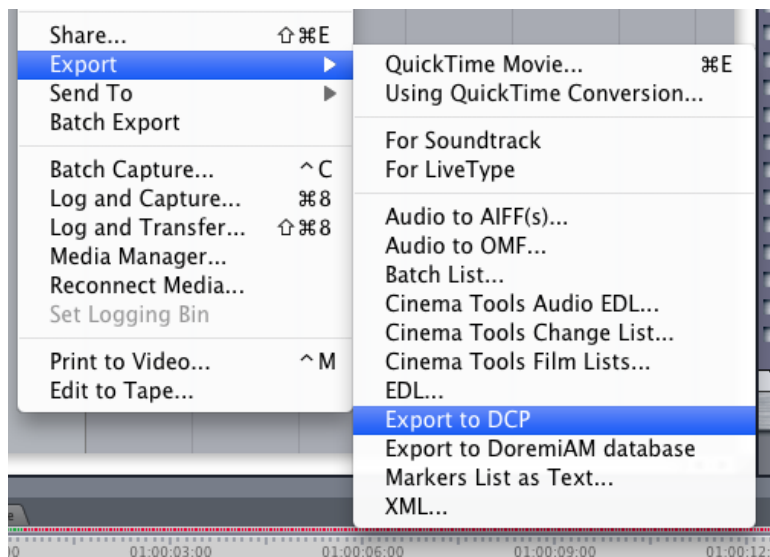


Figure 5: Export to DCP

3. You will be prompted to select the destination folder for your DCP. Navigate to the desired folder and press "Select."

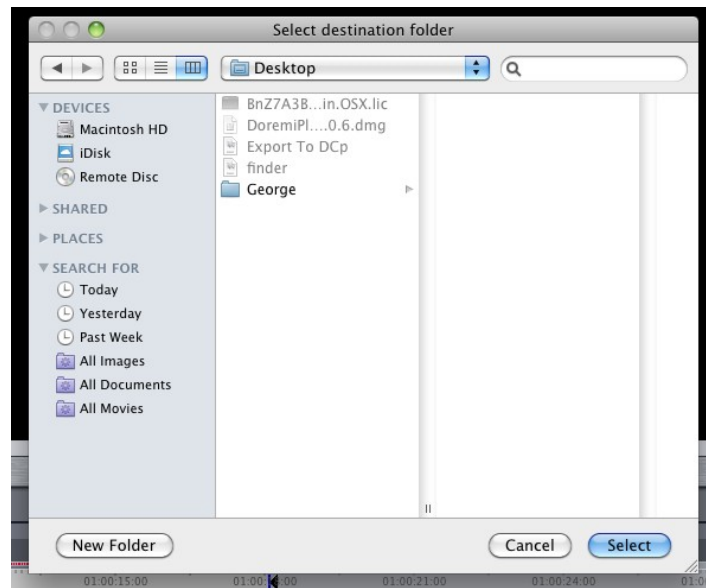


Figure 6: Select the Destination

4. Once the destination folder has been chosen, the Doremi Media Export window will appear (Figure 7).

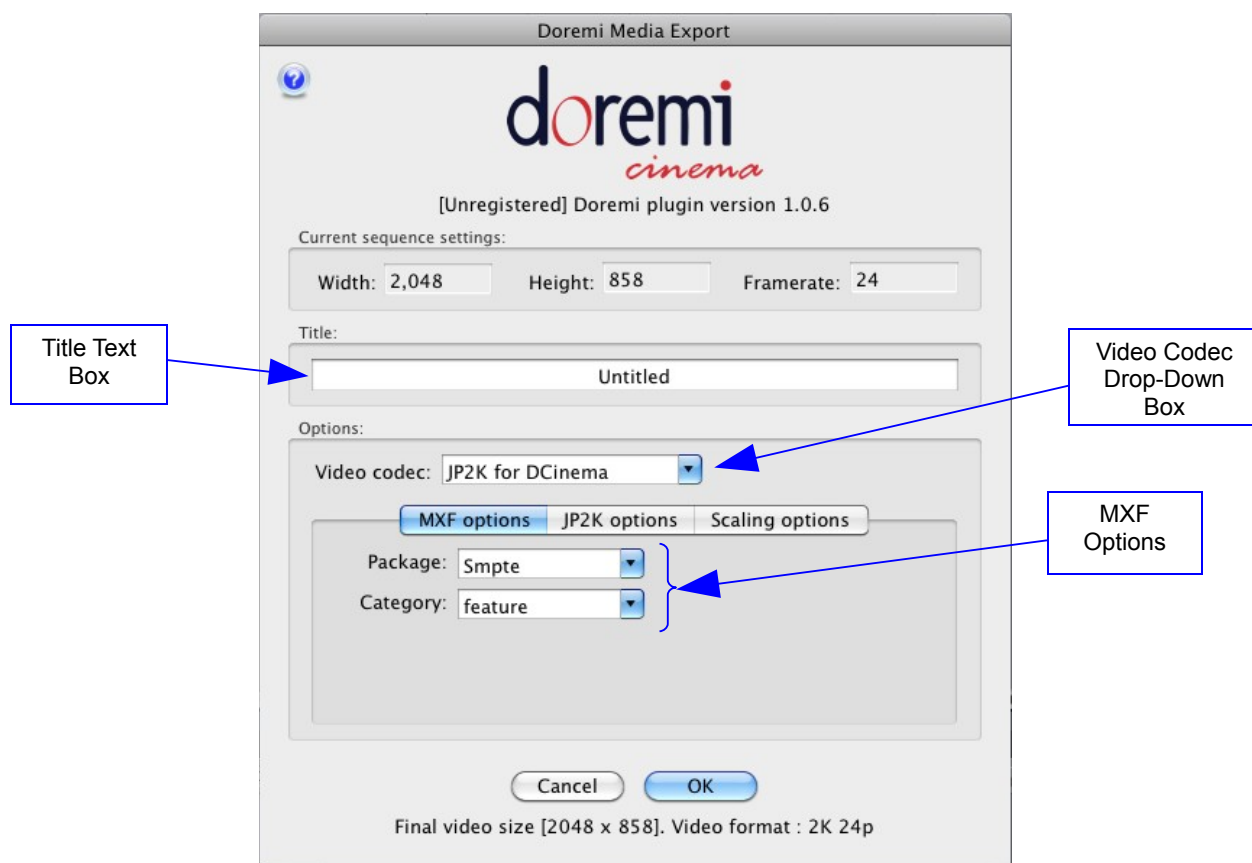


Figure 7: Doremi Media Export - MXF Options Tab

5. Type the desired title for the 2D DCP in the Title text box (Figure 7).
6. Using the Video codec Drop-down box select either JP2K (JPEG2000) or MPEG2 (Figure 7).
 - To create DCI-compliant packages, use the JP2K video codec. To create 1080p 4:2:0 or 4:2:2 packages with MPEG2 compression, use the MPEG2 video codec.
7. In the "MXF options" tab, select the package standard for the DCP and select the category for the DCP (Figure 7).
 - The package standard can be either SMPTE or Interop.
 - The category determines how the DCP will be categorized on the Digital Cinema Server. The available categories are: "feature," "trailer," "test," "teaser," "rating," "advertisement," "short," "transitional," "psa," and "policy."
8. The Encoding options tab will display the different options available for the selected Video codec. It will be labeled according to the selected codec as well (Figure 8 & Figure 9). Use this tab to select the desired encoding parameters.

- With the JPEG2000 video codec selected, the bitrate can be adjusted from 5mb/s to 250mb/s (for DCI-compliant packages use 250mb/s). XYZ' color conversion can also be selected by checking the “Convert to XYZ' (YCxCz' for 3D)” checkbox (Figure 8).

Note: XYZ' (YCxCz' for 3D) color conversion assumes a source colorspace of RGB ext.

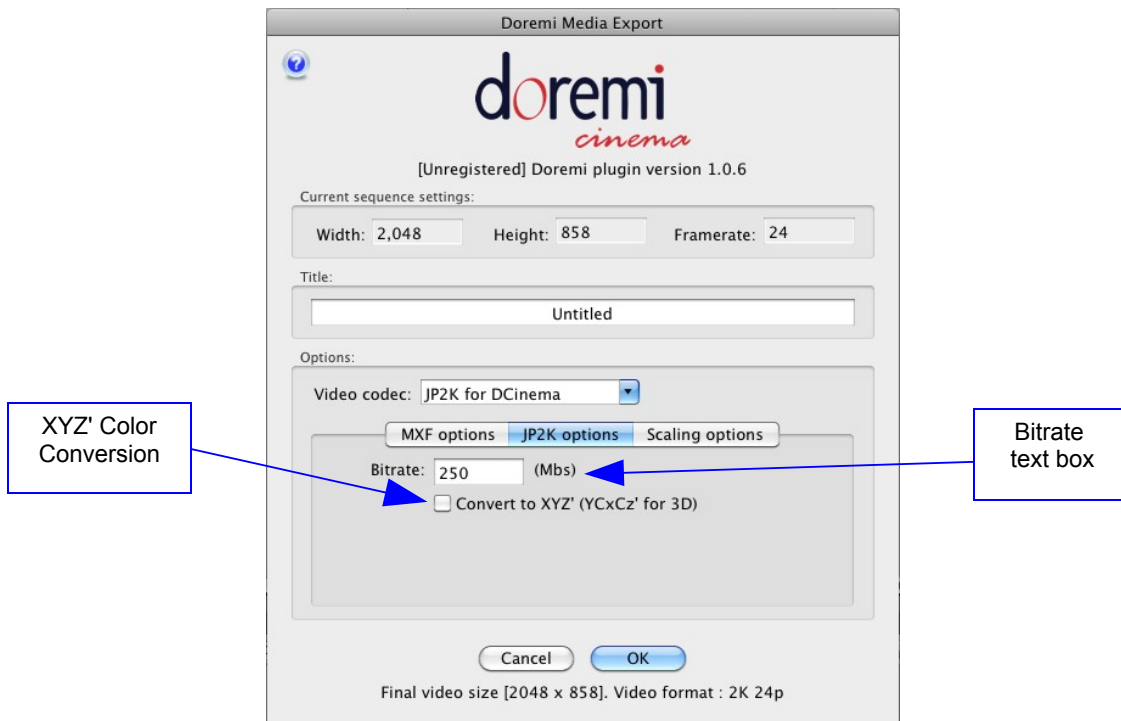


Figure 8: JP2K Encoding Options Tab

- With the MPEG2 video codec selected the bitrate can be adjusted from 20mb/s to 80mb/s (for the highest quality packages use 80mb/s). The GOP structure can be set to either I frames only or “IBP Open GOP” using the “Gop” drop down box. The Chroma sub-sampling can be set to either 4:2:0 or 4:2:2 using the “Chroma” drop down box (Figure 9).
- Using the MPEG2, codec interlaced packages can also be created by checking the “Generate Interlaced” check box (Figure 9).

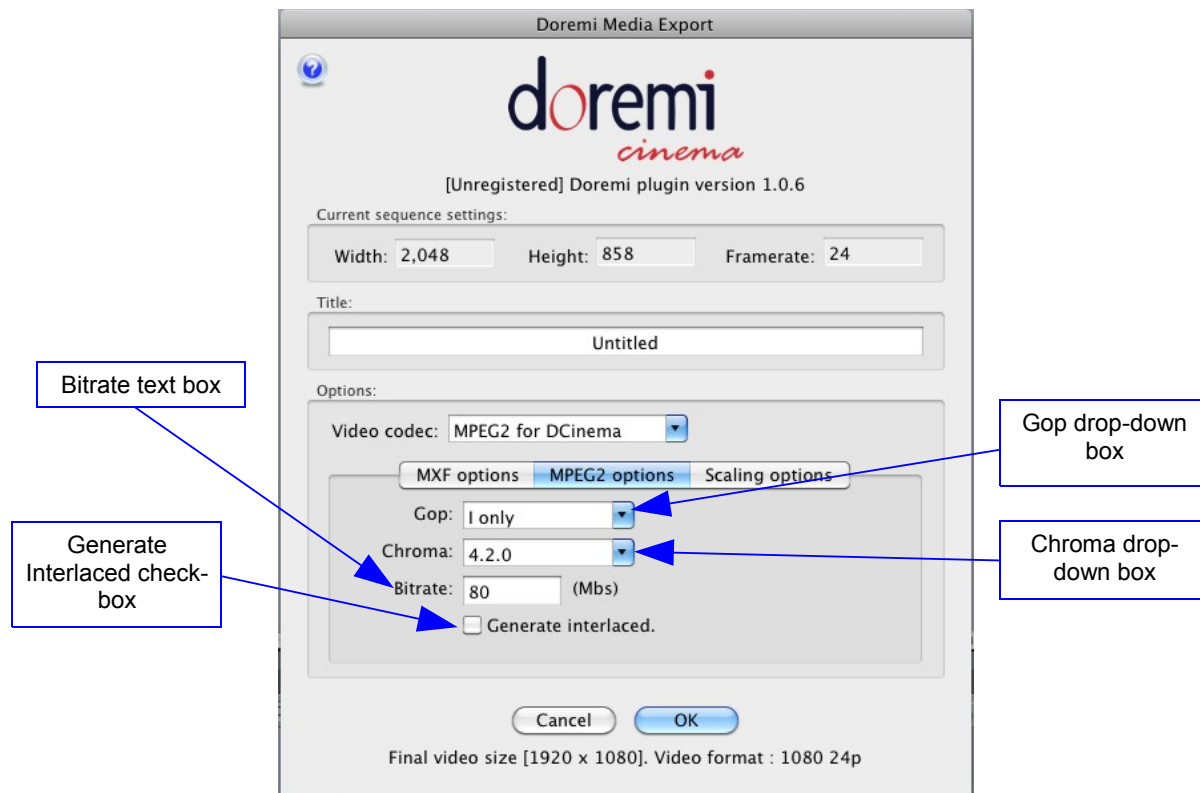


Figure 9: MPEG2 Encoding Options Tab

9. Use the "Scaling options" tab to set the final video size of your DCP (Figure 10).

Note: Max video size for MPEG2 packages is 1920x1080. Max video size for JP2K packages is 4096x2160.

- The "Mode" drop-down box can be used to scale the picture to fit into the final video size in a pre-defined way. The available modes are "Aspect" (maintain the aspect ratio), "Fit Horizontally," "Fit Vertically," "Fill," "Canvas," and "User Defined" (Figure 10).
- With the "User Defined" mode selected, enter the desired video size in the width and height text boxes. Then use the Crop or Pad text boxes to either crop the portion of the picture that is outside of the final video size or pad the frame to fit the picture into the final video size (Figure 10).

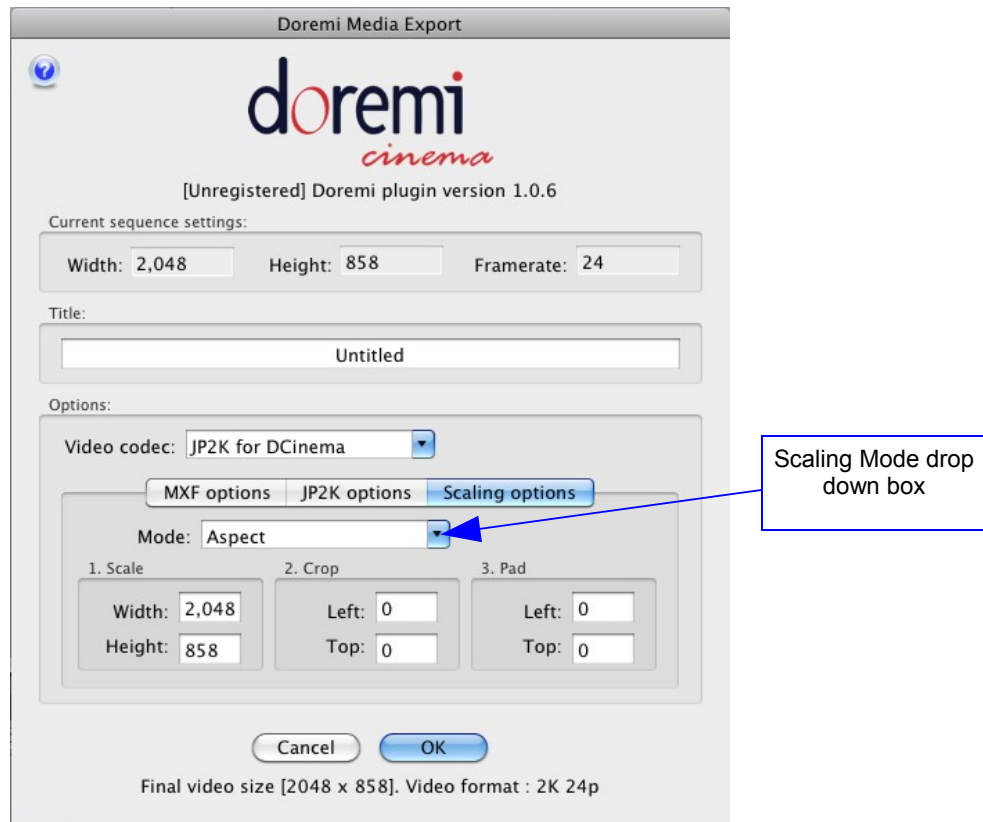


Figure 10: Scaling Options Tab

10. Once finished, click the "OK" button. The DCP will be created in the specified folder.

3.2 Creating 3D Digital Cinema Packages

Note: 3D DCP Generation is only available for the JPEG200 video codec. When creating a 3D DCP both sequences must have the same parameters (e.g., framerate, resolution, length...etc).

1. In the Browser window select both the left eye and right eye sequences to export as a 3D DCP.

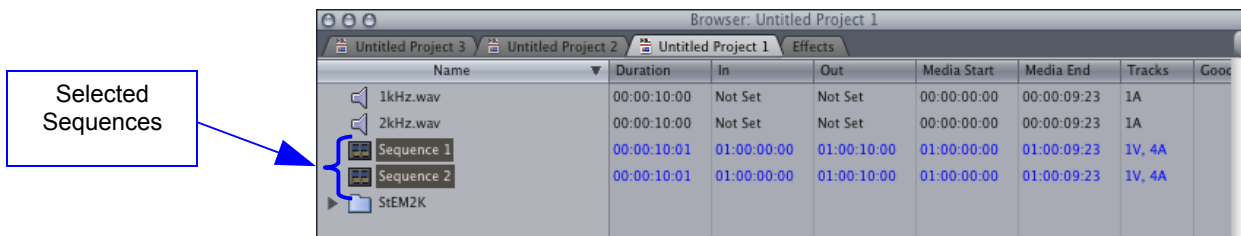


Figure 11: Left & Right Eye Sequences Selected

2. Once you have selected the appropriate sequences, go to the "File" menu and select "Export." Scroll down and select "Export to DCP" (Figure 5).
3. You will be prompted to select the destination for your DCP. Navigate to the desired folder and press "Select" (Figure 6).
4. After pressing Select, the "Stereoscopic Options" window will appear.

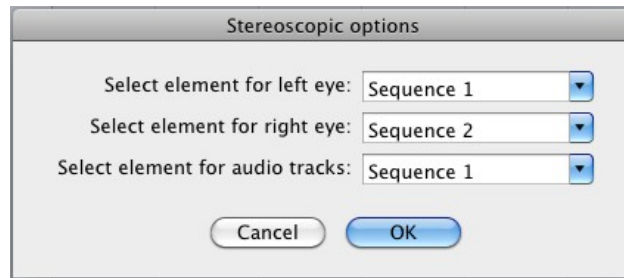


Figure 12: Stereoscopic Options Window

5. Select which sequence to use for the left and right eyes.
6. Select which sequence to use the audio from for the 3D DCP.
7. Click the "OK" button when finished.
8. After pressing "OK," the "Doremi Media Export" Window will appear (Figure 7).
9. Type the desired title for the 3D DCP in the Title text box (Figure 7).
10. The video codec is automatically set to JP2K for 3D exporting (Figure 7).
11. In the "MXF options" tab, select the package standard for the DCP and select the category for the DCP (Figure 7).
12. Under the JP2K options tab, select the bitrate and whether to enable YCxCz' color conversion (Figure 8).
13. In the "Scaling options" tab, enter the desired scaling options (Figure 10).
14. Once finished, click the "OK" button. The 3D DCP will be created in the selected folder.

4 Surround Sound

To generate DCPs with surround sound, the FCP sequence needs to be configured for surround sound and the audio tracks mapped to the corresponding outputs. This section explains the procedure for generating DCPs with surround sound.

1. Control-Click or Right-Click on the sequence in the FCP browser window and select “Settings” (Figure 13).

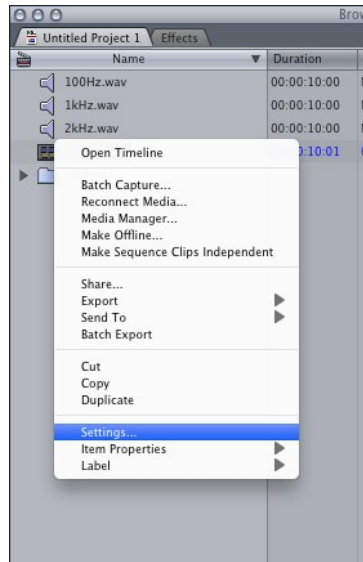


Figure 13: Sequence Settings

2. From the Sequence Settings window select the “Audio Outputs” tab (Figure 14).

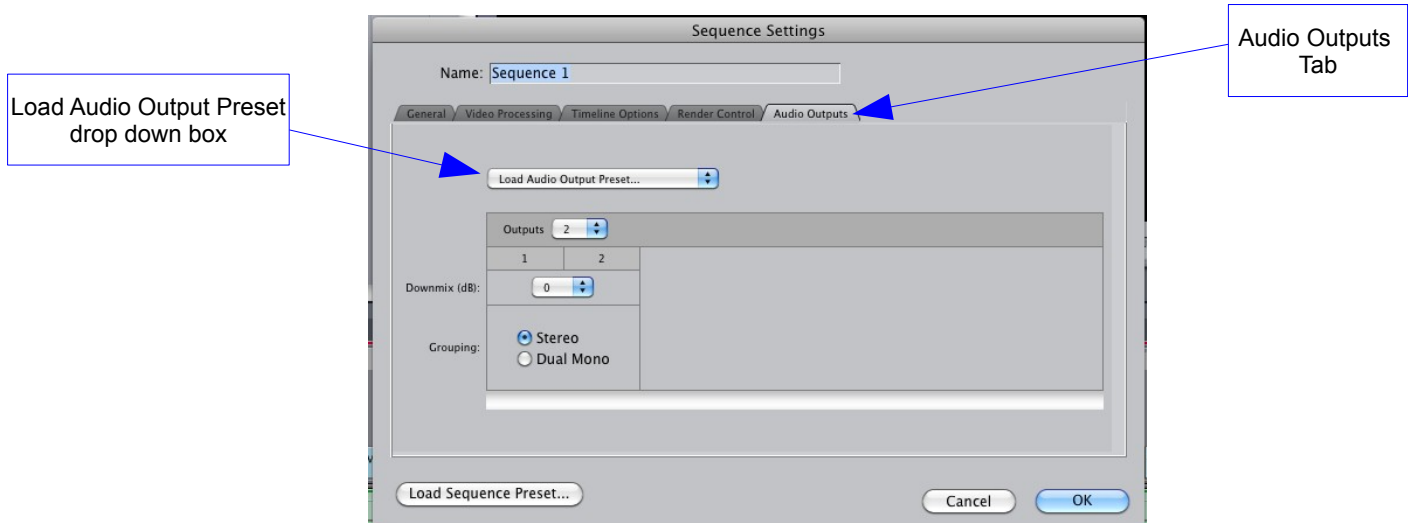


Figure 14: Audio Outputs Tab

- From the “Audio Outputs” tab using the “Load Audio Output Preset...” drop-down box, select the “5.1 Monitoring: L+R,C,LFE,Ls+Rs” preset (Figure 14 & Figure 15).

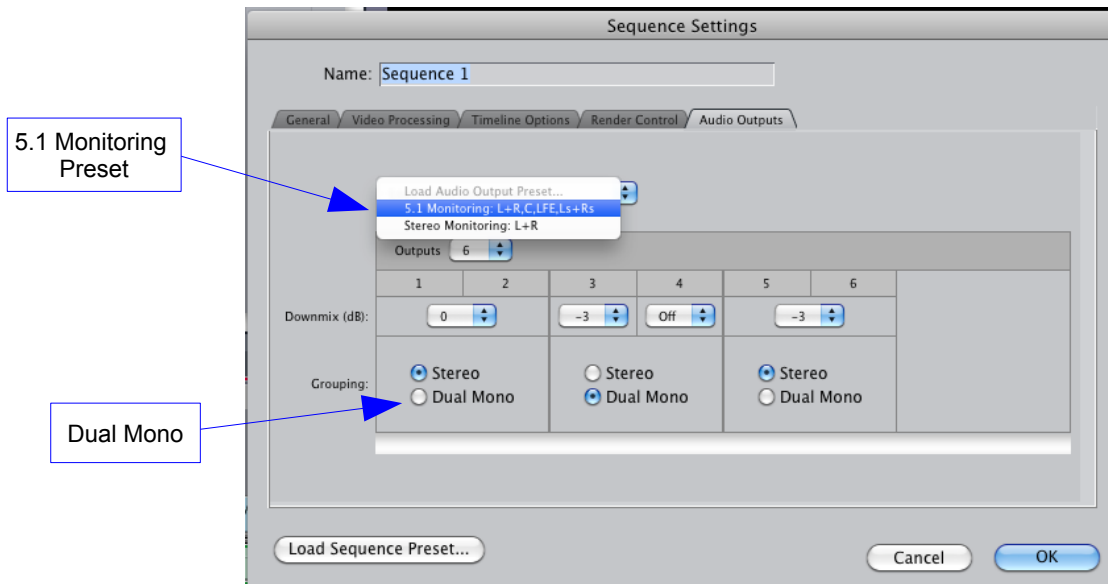


Figure 15: Load Audio Preset

- For channels 1 & 2 and 3 & 4, select “Dual Mono” grouping (Figure 15) and click “OK.”
- If your system is not configured for surround sound monitoring, you will receive the error shown in Figure 16. Click “OK” to downmix the audio for monitoring purposes.

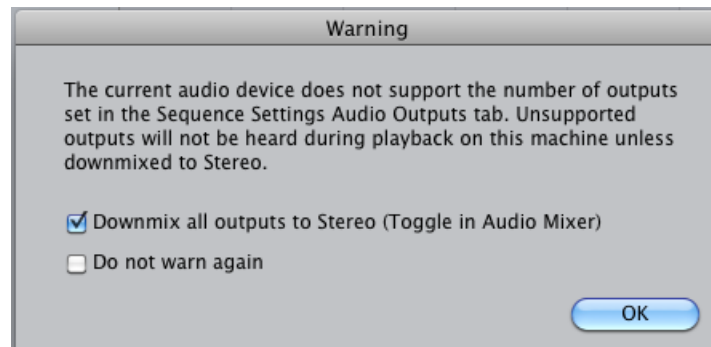


Figure 16: Surround Downmix Warning

- In the FCP timeline, Control-Click or Right-Click on the desired audio track between the Lock and the Auto Select buttons (Figure 17).
- From the Audio track menu, select “Audio Outputs” and then select the desired audio channel (Figure 18).

Note: Standard surround sound audio mapping is Channel 1: Left, 2: Right, 3: Center, 4: LFE, 5: Left Surround, and 6: Right Surround.

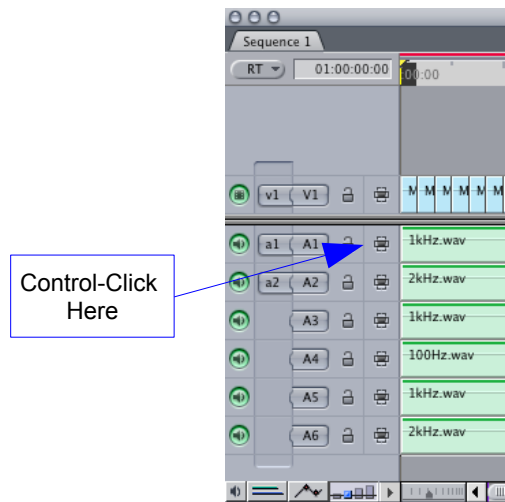


Figure 17: Click Here

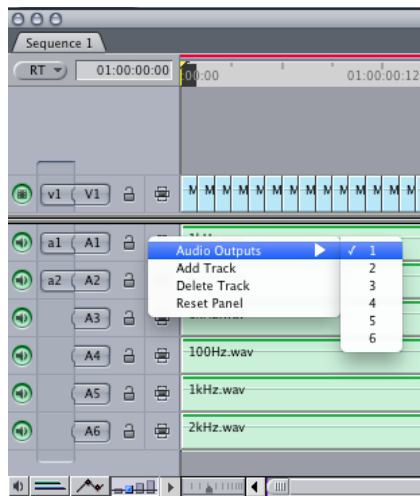


Figure 18: Audio Track Menu

8. Repeat steps 6 and 7 for each audio track then follow the steps in Section 3 to export the sequence as a DCP.

5 Acronyms

Term	Definition
DCI	Digital Cinema Initiatives
DCP	Digital Cinema Package
FCP	Final Cut Pro
JPEG	Joint Photographic Experts Group
JP2K	JPEG2000
MPEG	Moving Pictures Experts Group
GOP	Group of Pictures

6 Document Revision History

Date	Revision	Description
07/12/2011	1.0	First version.
07/25/2011	1.1	Section 2.2 updated. Warranty page updated.
09/14/2011	1.2	Minor modifications.
10/03/2011	1.3	Section "Surround Sound" added.
10/13/2011	1.4	Section 3.1 modified to adjust max JPEG2000 supported resolution.
11/23/2011	1.5	Section 1.1 modified.
07/26/2012	1.6	Logo and contact information updated.